

REMARKS

The Official Action mailed May 31, 2006, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on March 16, 2001; January 7, 2005; and March 23, 2006.

Claims 2-12 were pending in the present application, of which claims 2, 6 and 11 are independent. Claims 2, 6 and 11 have been amended to better recite the features of the present invention. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 4 of the Official Action rejects claims 2, 3, 6, 8 and 11 as anticipated by WO 97/50197 to Dohi, and the Official Action states that U.S. Patent No. 6,341,224 to Dohi is an English translation of WO '97. (The Official Action refers to the first named inventor of WO '97 as "Dohl"; however, please note that the first named inventor is "Dohi.") The Applicant respectfully submits that an anticipation rejection cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP § 2131, to establish an anticipation rejection, each and every element as set forth in the claim must be described either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Official Action asserts that Dohi discloses measuring (1) a SIR (a signal-to-interference plus noise power ratio) and an error rate; (2) calculating the SIR and error rate values and comparing the measured SIR value with a target SIR; and (3) calculating the target SIR in accordance with the error rate and using the comparison result of the measured SIR with the target SIR to control a transmission power (page 3, Paper No. 20060527).

However, independent claim 2 has been amended to recite means for estimating inherent phase noise characteristics of a local oscillator in an outdoor unit; and means for setting carrier regenerative loop characteristics on the basis of the estimated inherent phase noise characteristics of the local oscillator in the outdoor unit. Independent claim 6 has been amended to recite a radio digital signal receiver comprising a down-converter having a local oscillator; and means for changing a loop characteristic for a carrier regenerator on the basis of foresight information for a relationship among three values of a received C/N, a decoding error rate and an inherent phase noise of the local oscillator in the down-converter and the determined result of the magnitude of the decoding error rate. Independent claim 11 has been amended to recite a signal processing method used in a radio digital signal receiver for down-converting a received modulation signal by using a down-converter, demodulating the received modulated signal by using a regenerated carrier and decoding a digital signal from a demodulated signal; where a predetermined value for a received C/N and a predetermined threshold are determined on the basis of foresight information for a relationship among three values of a received C/N, a decoding error rate and an inherent phase noise of a local oscillator in the down-converter.

That is, claims 2, 6 and 11 have been amended to recite that inherent phase noise characteristics of a local oscillator are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are determined) partly on the basis of foresight information for a relationship among three values of a received C/N, a decoding error rate, and a phase noise inherent to the local oscillator. For the reasons provided below, the Applicant respectfully submits that Dohi does not teach the above-referenced features of the present invention, either explicitly or inherently.

In the present invention, it is important to note that "phase noise" (or "phase noise characteristics") refers to an inherent phase noise generated by a local oscillator, which may be provided in a down-converter and may be provided in an outdoor unit (i.e., an antenna plus a down converter). As recited in the present claims and taught in

the present specification, one feature of the present invention is the individual detection of a reception carrier-to-noise ratio (CNR or C/N) and decoding error rate of a decoded digital signal and estimation of inherent phase-noise characteristics of a local oscillator on the basis of the decoding error rate when the reception CNR has a specific value.

The Applicant respectfully submits that the Official Action does not appear to properly construe the term "phase noise characteristics" as defined by the present specification. In Dohi, the signal-to-interference plus noise power ratio (SIR) involves "interference" (which is measured or calculated in Dohi). However, the SIR is irrelevant to a "phase noise characteristic" as used in the present invention. As noted above, the "phase noise characteristic" in the present invention relates to properties inherent to a local oscillator, which is essentially different from Dohi, which appears to relate to the phenomenon that a phase of a transmitted signal itself is disordered (i.e., interference is caused) due to an effect such as "fading" in transmitting a radio communication signal.

One technical idea of the present invention is based on the discovery of a phenomenon that a relationship between the reception CNR and the decoding error rate of the digital signal (when burst waves are received) varies depending on the inherent phase noise characteristic of the local oscillator. The present invention properly estimates the inherent phase-noise characteristic of the local oscillator on the basis of (1) the known relationship (i.e., foresight information), which has been measured beforehand, among the reception CNR, the decoding error rate and the inherent phase-noise level of the local oscillator, and (2) the CNR and the decoding error rate, which are actually observed when operating the receiver.

According to the present invention, even if it is difficult to directly measure the inherent phase-noise characteristic of the local oscillator, the inherent phase-noise characteristic of the local oscillator can be estimated in practically permissible accuracy on the basis of the detection of both the CNR and the decoding error rate upon reception. Therefore, this brings the specific technical advantage that it is possible to

automatically establish the carrier regenerative loop characteristic suitable to the property of the unit connected to the receiver.

Dohi does not teach that inherent phase noise characteristics of a local oscillator are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are determined) partly on the basis of foresight information for a relationship among three values of a received C/N, a decoding error rate, and a phase noise inherent to the local oscillator, either explicitly or inherently. Rather, Dohi appears to teach measuring a SIR and an error rate and comparing the measured SIR with the target SIR.

Since Dohi does not teach all the elements of the independent claims, either explicitly or inherently, an anticipation rejection cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 are in order and respectfully requested.

Paragraph 5 of the Official Action rejects dependent claims 4, 5, 7, 9, 10 and 12 as obvious based on the combination of Dohi and U.S. Patent No. 5,572,516 to Miya. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of

one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Please incorporate the arguments above with respect to the deficiencies in Dohi. Miya does not cure the deficiencies in Dohi. The Official Action relies on Miya to allegedly teach the features of the dependent claims. Specifically, the Official Action relies on Miya to allegedly teach transmission of PSK modulated systems in CDMA power control systems. However, Dohi and Miya, either alone or in combination, do not teach or suggest that inherent phase noise characteristics of a local oscillator are estimated (or a loop characteristic is changed) (or a predetermined value and threshold are determined) partly on the basis of foresight information for a relationship among three values of a received C/N, a decoding error rate, and a phase noise inherent to the local oscillator. Since Dohi and Miya do not teach or suggest all the claim limitations a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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